

## PATENT COOPERATION TREATY

PCT

NOTIFICATION OF THE RECORDING  
OF A CHANGE(PCT Rule 92bis.1 and  
Administrative Instructions, Section 422)

From the INTERNATIONAL BUREAU

To:

ATOFINA RESEARCH  
Patent Dept.  
Zone Industrielle C  
B-7181 Seneffe (Feluy)  
BELGIQUE

Date of mailing (day/month/year) 05 November 2001 (05.11.01)	<b>IMPORTANT NOTIFICATION</b>
Applicant's or agent's file reference F-755 WO	
International application No. PCT/EP00/05397	International filing date (day/month/year) 08 June 2000 (08.06.00)

## 1. The following indications appeared on record concerning:

☒ the applicant      ☐ the inventor      ☐ the agent      ☐ the common representative

## Name and Address

FINA RESEARCH S.A.  
Zone Industrielle C  
B-7181 Seneffe (Feluy)  
Belgium

## State of Nationality

BE

## State of Residence

BE

Telephone No.

Facsimile No.

Teleprinter No.

## 2. The International Bureau hereby notifies the applicant that the following change has been recorded concerning:

☐ the person      ☒ the name      ☐ the address      ☐ the nationality      ☐ the residence

## Name and Address

ATOFINA RESEARCH  
Zone Industrielle C  
B-7181 Seneffe (Feluy)  
Belgium

## State of Nationality

BE

## State of Residence

BE

Telephone No.

Facsimile No.

Teleprinter No.

## 3. Further observations, if necessary:

## 4. A copy of this notification has been sent to:

☒ the receiving Office      ☐ the designated Offices concerned  
☐ the International Searching Authority      ☒ the elected Offices concerned  
☒ the International Preliminary Examining Authority      ☐ other:

The International Bureau of WIPO  
34, chemin des Colombettes  
1211 Geneva 20, Switzerland

Facsimile No.: (41-22) 740.14.35

Authorized officer

R. Chrem

Telephone No.: (41-22) 338.83.38

## PATENT COOPERATION TREATY

PCT

## NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Commissioner  
 US Department of Commerce  
 United States Patent and Trademark  
 Office, PCT  
 2011 South Clark Place Room  
 CP2/5C24  
 Arlington, VA 22202  
 ETATS-UNIS D'AMERIQUE  
 in its capacity as elected Office

<b>Date of mailing</b> (day/month/year) 19 February 2001 (19.02.01)	
<b>International application No.</b> PCT/EP00/05397	<b>Applicant's or agent's file reference</b> F-755 WO
<b>International filing date</b> (day/month/year) 08 June 2000 (08.06.00)	<b>Priority date</b> (day/month/year) 10 June 1999 (10.06.99)
<b>Applicant</b> DUPIRE, Marc et al	

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International Preliminary Examining Authority on:  
 15 December 2000 (15.12.00)

☐ in a notice effecting later election filed with the International Bureau on:  
 \_\_\_\_\_

2. The election ☒ was

☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No.: (41-22) 740.14.35	Authorized officer Zakaria EL KHODARY Telephone No.: (41-22) 338.83.38
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(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
21 December 2000 (21.12.2000)

PCT

(10) International Publication Number  
**WO 00/77090 A2**

(51) International Patent Classification<sup>7</sup>: C08L 23/10

(21) International Application Number: PCT/EP00/05397

(22) International Filing Date: 8 June 2000 (08.06.2000)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
99111318.4 10 June 1999 (10.06.1999) EP

(71) Applicant (for all designated States except US): FINA RESEARCH S.A. [BE/BE]; Zone Industrielle C, B-7181 Seneffe (Feluy) (BE).

(72) Inventors; and

(75) Inventors/Applicants (for US only): DUPIRE, Marc [BE/BE]; Rue Mauric Flament (H.), 4, B-7022 Mons (BE). MICHEL, Jacques [BE/BE]; Chaussée de Marche, 2/C, B-7181 Seneffe (BE).

(74) Agent: FINA RESEARCH S.A.; Patent Dept., Zone Industrielle C, B-7181 Seneffe (Feluy) (BE).

(81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.

(84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

**Published:**

— Without international search report and to be republished upon receipt of that report.

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: POLYPROPYLENE WITH HIGH MELT STRENGTH AND DRAWABILITY

(57) Abstract: Use of a multimodal polypropylene blend in melt processing wherein for enhancing a compromise between melt strength and drawability the blend has a dispersion index of at least 8 and a ratio Mz/Mn of at least 10.

WO 00/77090 A2

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
21 December 2000 (21.12.2000)

PCT

(10) International Publication Number  
**WO 00/77090 A3**

(51) International Patent Classification<sup>7</sup>: **C08L 23/10**

(21) International Application Number: PCT/EP00/05397

(22) International Filing Date: 8 June 2000 (08.06.2000)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
99111318.4 10 June 1999 (10.06.1999) EP

(71) Applicant (for all designated States except US): **FINA RESEARCH S.A.** [BE/BE]; Zone Industrielle C, B-7181 Seneffe (Feluy) (BE).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **DUPIRE, Marc** [BE/BE]; Rue Mauric Flament (H.), 4, B-7022 Mons (BE). **MICHEL, Jacques** [BE/BE]; Chaussée de Marche, 2/C, B-7181 Seneffe (BE).

(74) Agent: **FINA RESEARCH S.A.**; Patent Dept., Zone Industrielle C, B-7181 Seneffe (Feluy) (BE).

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.

(84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

**Published:**

— With international search report.

(88) Date of publication of the international search report:  
8 February 2001

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

(54) Title: POLYPROPYLENE WITH HIGH MELT STRENGTH AND DRAWABILITY

(57) Abstract: Use of a multimodal polypropylene blend in melt processing wherein for enhancing a compromise between melt strength and drawability the blend has a dispersion index of at least 8 and a ratio Mz/Mn of at least 10.

WO 00/77090 A3

## PCT

## INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference <b>F-755 WO</b>	<b>FOR FURTHER ACTION</b> see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. <b>PCT/EP 00/ 05397</b>	International filing date (day/month/year) <b>08/06/2000</b>	(Earliest) Priority Date (day/month/year) <b>10/06/1999</b>
Applicant <b>FINA RESEARCH S.A.</b>		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 3 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

**1. Basis of the report**

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☐ **Certain claims were found unsearchable** (See Box I).

3. ☐ **Unity of invention is lacking** (see Box II).

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No.

☐ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

☐ None of the figures.

## INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP 00/05397

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C08L23/10

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C08L C08J C08F C08K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X,P	EP 0 942 013 A (GRAND POLYMER ) 15 September 1999 (1999-09-15)	1-3, 7-14, 18-25, 29-33
Y	examples X-9 & WO 99 07752 A (GRAND POLYMER) 18 February 1999 (1999-02-18)	4-6, 15-17, 26-28
Y	--- US 5 549 867 A (GESSNER SCOTT L ET AL) 27 August 1996 (1996-08-27)  column 1, line 16 -column 2, line 31; examples 16-20  --- -/--	4-6, 15-17, 26-28



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

° Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&amp;" document member of the same patent family

Date of the actual completion of the international search

8 September 2000

Date of mailing of the international search report

22/09/2000

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2  
NL - 2280 HV Rijswijk  
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
Fax: (+31-70) 340-3016

Authorized officer

Schmidt, H

## INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP 00/05397

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5 494 965 A (HARLIN ALI ET AL) 27 February 1996 (1996-02-27)  column 3, line 447 -column 4, line 16 ---	4-6, 15-17, 26-28
A	US 5 578 682 A (WHITE DONALD A) 26 November 1996 (1996-11-26) column 2, line 19 -column 4, line 52; example 26 ---	1-33
A	EP 0 310 734 A (FINA TECHNOLOGY) 12 April 1989 (1989-04-12) examples 1-3 -----	1-33

## INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/EP 00/05397

Patent document cited in search report		Publication date	Patent family member(s)		Publication date
EP 942013	A	15-09-1999	WO	9907752 A	18-02-1999
US 5549867	A	27-08-1996	GB	2299292 A	02-10-1996
			US	5612123 A	18-03-1997
US 5494965	A	27-02-1996	FI	931343 A	27-09-1994
			AT	173484 T	15-12-1998
			CA	2136742 A	13-10-1994
			CN	1106613 A	09-08-1995
			DE	69414667 D	24-12-1998
			DE	69414667 T	08-04-1999
			EP	0642549 A	15-03-1995
			ES	2123126 T	01-01-1999
			WO	9422948 A	13-10-1994
			NO	944525 A	25-11-1994
US 5578682	A	26-11-1996	BR	9609044 A	11-05-1999
			CA	2220000 A	28-11-1996
			CZ	9703718 A	12-08-1998
			DE	69609329 D	17-08-2000
			EP	0828761 A	18-03-1998
			HU	9802774 A	29-03-1999
			JP	11505273 T	18-05-1999
			PL	323499 A	30-03-1998
			WO	9637521 A	28-11-1996
EP 0310734	A	12-04-1989	AT	114323 T	15-12-1994
			CA	1323621 A	26-10-1993
			CN	1032343 A, B	12-04-1989
			DE	3750776 D	05-01-1995
			DE	3750776 T	27-04-1995
			ES	2064322 T	01-02-1995
			JP	1074202 A	20-03-1989
			JP	2669833 B	29-10-1997
			KR	9508152 B	25-07-1995
			US	4975403 A	04-12-1990



PCT

REQUEST

The undersigned requests that the present international application be processed according to the Patent Cooperation Treaty.

For receiving Office use only

10/009625

International Application No.

Fee 488 due 8/6/00

International Filing Date

Name of receiving Office and "PCT International Application"

Applicant's or agent's file reference  
(if desired) (12 characters maximum)

F-755 WO

Box No. I TITLE OF INVENTION

Polypropylene with high melt strength and drawability

Box No. II APPLICANT

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)

FINA RESEARCH S.A.  
ZONE INDUSTRIELLE C  
B-7181 SENEFFE (FELUY)  
BELGIUM

☐ This person is also inventor

Telephone No.

32 64 51.41.11

Facsimile No.

32 64 51.46.57

Teleprinter No.

State (i.e. country) of nationality:

BE

State (i.e. country) of residence:

BE

This person is applicant  
for the purposes of:

☐

all designated  
States

☒

all designated States except  
the United States of America

☐

the United States  
of America only

☐

the States indicated in  
the Supplemental Box

Box No. III FURTHER APPLICANT(S) AND/OR (FURTHER) INVENTOR(S)

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)

DUPIRE, Marc  
Rue Maurice Flament (H.), 4  
7022 MONS  
Belgium

This person is:

☐ applicant only

☒ applicant and inventor

☐ inventor only (If this check-box is  
marked, do not fill in below.)

State (i.e. country) of nationality: BE

State (i.e. country) of residence: BE

This person is applicant  
for the purposes of:

☐

all designated  
States

☐

all designated States except  
the United States of America

☒

the United States  
of America only

☐

the States indicated in  
the Supplemental Box

☒

Further applicants and/or (further) inventors are indicated on a continuation sheet.

Box No. IV AGENT OR COMMON REPRESENTATIVE; OR ADDRESS FOR CORRESPONDENCE

The person identified below is hereby/has been appointed to act on behalf  
representative  
of the applicant(s) before the competent International Authorities as:

☐ agent

☒ common

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)

FINA RESEARCH S.A.  
PATENT DEPARTMENT  
ZONE INDUSTRIELLE C  
B-7181 SENEFFE (FELUY)  
Belgium

Telephone No.

32 64 51.41.11

Facsimile No.

32 64 51.46.57

Teleprinter No.

☐ Mark this check-box where no agent or common representative is/has been appointed and the space above is used instead to indicate a special address to which correspondence should be sent.

**Continuation of Box No. III FURTHER APPLICANTS AND/OR (FURTHER) INVENTORS***If none of the following sub-boxes is used, this sheet is not to be included in the request.*Name and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)*MICHEL, Jacques  
Chaussée de Marche, 2/C  
B-7181 Seneffe  
Belgium

This person is:

- ☐ applicant only
- ☒ applicant and inventor
- ☐ inventor only *(If this check-box is marked, do not fill in below.)*

State (i.e. country) of nationality:

BE

State (i.e. country) of residence:

BE

This person is applicant  
for the purposes of☐ all designated  
States☐ all designated States except  
the United States of America☒ the United States  
of America only☐ the States indicated in  
the Supplemental BoxName and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)*

This person is:

- ☐ applicant only
- ☒ applicant and inventor
- ☐ inventor only *(If this check-box is marked, do not fill in below.)*

State (i.e. country) of nationality:

State (i.e. country) of residence:

This person is applicant  
for the purposes of☐ all designated  
States☐ all designated States except  
the United States of America☐ the United States  
of America only☐ the States indicated in  
the Supplemental BoxName and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)*

This person is:

- ☐ applicant only
- ☐ applicant and inventor
- ☐ inventor only *(If this check-box is marked, do not fill in below.)*

State (i.e. country) of nationality:

State (i.e. country) of residence:

This person is applicant  
for the purposes of☐ all designated  
States☐ all designated States except  
the United States of America☐ the United States  
of America only☐ the States indicated in  
the Supplemental BoxName and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)*

This person is:

- ☐ applicant only
- ☐ applicant and inventor
- ☐ inventor only *(If this check-box is marked, do not fill in below.)*

State (i.e. country) of nationality:

State (i.e. country) of residence:

This person is applicant  
for the purposes of☐ all designated  
States☐ all designated States except  
the United States of America☐ the United States  
of America only☐ the States indicated in  
the Supplemental Box☐ Further applicants and/or (further) inventors are indicated on another continuation sheet.

**Box No.V DESIGNATION OF STATES**

The following designations are hereby made under Rule 4.9(a) (mark the applicable check-boxes; at least one must be marked):

**Regional Patent**

- ☒ **AP ARIPO Patent:** GH Ghana, GM Gambia, KE Kenya, LS Lesotho, MW Malawi, SD Sudan, SL Sierra Leone, SZ Swaziland, TZ United Republic of Tanzania, UG Uganda, ZW Zimbabwe, and any other State which is a Contracting State of the Harare Protocol and of the PCT
- ☒ **EA Eurasian Patent:** AM Armenia, AZ Azerbaijan, BY Belarus, KG Kyrgyzstan, KZ Kazakhstan, MD Republic of Moldova, RU Russian Federation, TJ Tajikistan, TM Turkmenistan, and any other State which is a Contracting State of the Eurasian Patent Convention and of the PCT
- ☒ **EP European Patent:** AT Austria, BE Belgium, CH and LI Switzerland and Liechtenstein, CY Cyprus, DE Germany, DK Denmark, ES Spain, FI Finland, FR France, GB United Kingdom, GR Greece, IE Ireland, IT Italy, LU Luxembourg, MC Monaco, NL Netherlands, PT Portugal, SE Sweden, and any other State which is a Contracting State of the European Patent Convention and of the PCT
- ☒ **OA OAPI Patent:** BF Burkina Faso, BJ Benin, CF Central African Republic, CG Congo, CI Côte d'Ivoire, CM Cameroon, GA Gabon, GN Guinea, GW Guinea-Bissau, ML Mali, MR Mauritania, NE Niger, SN Senegal, TD Chad, TG Togo, and any other State which is a member State of OAPI and a Contracting State of the PCT (if other kind of protection or treatment desired, specify on dotted line)

**National Patent (if other kind of protection or treatment desired, specify on dotted line):**

- |  |  |
|--|--|
| <input checked="" type="checkbox"/> AE United Arab Emirates                  | <input checked="" type="checkbox"/> LR Liberia                                   |
| <input checked="" type="checkbox"/> AL Albania                               | <input checked="" type="checkbox"/> LS Lesotho                                   |
| <input checked="" type="checkbox"/> AM Armenia                               | <input checked="" type="checkbox"/> LT Lithuania                                 |
| <input checked="" type="checkbox"/> AT Austria                               | <input checked="" type="checkbox"/> LU Luxembourg                                |
| <input checked="" type="checkbox"/> AU Australia                             | <input checked="" type="checkbox"/> LV Latvia                                    |
| <input checked="" type="checkbox"/> AZ Azerbaijan                            | <input checked="" type="checkbox"/> MA Morocco                                   |
| <input checked="" type="checkbox"/> BA Bosnia and Herzegovina                | <input checked="" type="checkbox"/> MD Republic of Moldova                       |
| <input checked="" type="checkbox"/> BB Barbados                              | <input checked="" type="checkbox"/> MG Madagascar                                |
| <input checked="" type="checkbox"/> BG Bulgaria                              | <input checked="" type="checkbox"/> MK The former Yugoslav Republic of Macedonia |
| <input checked="" type="checkbox"/> BR Brazil                                |  |
| <input checked="" type="checkbox"/> BY Belarus                               | <input checked="" type="checkbox"/> MN Mongolia                                  |
| <input checked="" type="checkbox"/> CA Canada                                | <input checked="" type="checkbox"/> MW Malawi                                    |
| <input checked="" type="checkbox"/> CH and LI Switzerland and Liechtenstein  | <input checked="" type="checkbox"/> MX Mexico                                    |
| <input checked="" type="checkbox"/> CN China                                 | <input checked="" type="checkbox"/> NO Norway                                    |
| <input checked="" type="checkbox"/> CR Costa Rica                            | <input checked="" type="checkbox"/> NZ New Zealand                               |
| <input checked="" type="checkbox"/> CU Cuba                                  | <input checked="" type="checkbox"/> PL Poland                                    |
| <input checked="" type="checkbox"/> CZ Czech Republic                        | <input checked="" type="checkbox"/> PT Portugal                                  |
| <input checked="" type="checkbox"/> DE Germany                               | <input checked="" type="checkbox"/> RO Romania                                   |
| <input checked="" type="checkbox"/> DK Denmark                               | <input checked="" type="checkbox"/> RU Russian Federation                        |
| <input checked="" type="checkbox"/> DM Dominica                              | <input checked="" type="checkbox"/> SD Sudan                                     |
| <input checked="" type="checkbox"/> EE Estonia                               | <input checked="" type="checkbox"/> SE Sweden                                    |
| <input checked="" type="checkbox"/> ES Spain                                 | <input checked="" type="checkbox"/> SG Singapore                                 |
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| <input checked="" type="checkbox"/> GB United Kingdom                        | <input checked="" type="checkbox"/> SK Slovakia                                  |
| <input checked="" type="checkbox"/> GD Grenada                               | <input checked="" type="checkbox"/> SL Sierra Leone                              |
| <input checked="" type="checkbox"/> GE Georgia                               | <input checked="" type="checkbox"/> TJ Tajikistan                                |
| <input checked="" type="checkbox"/> GH Ghana                                 | <input checked="" type="checkbox"/> TM Turkmenistan                              |
| <input checked="" type="checkbox"/> GM Gambia                                | <input checked="" type="checkbox"/> TR Turkey                                    |
| <input checked="" type="checkbox"/> HR Croatia                               | <input checked="" type="checkbox"/> TT Trinidad and Tobago                       |
| <input checked="" type="checkbox"/> HU Hungary                               | <input checked="" type="checkbox"/> TZ United Republic of Tanzania               |
| <input checked="" type="checkbox"/> ID Indonesia                             | <input checked="" type="checkbox"/> UA Ukraine                                   |
| <input checked="" type="checkbox"/> IL Israel                                | <input checked="" type="checkbox"/> UG Uganda                                    |
| <input checked="" type="checkbox"/> IN India                                 | <input checked="" type="checkbox"/> US United States of America                  |
| <input checked="" type="checkbox"/> IS Iceland                               |  |
| <input checked="" type="checkbox"/> JP Japan                                 | <input checked="" type="checkbox"/> UZ Uzbekistan                                |
| <input checked="" type="checkbox"/> KE Kenya                                 | <input checked="" type="checkbox"/> VN Viet Nam                                  |
| <input checked="" type="checkbox"/> KG Kyrgyzstan                            | <input checked="" type="checkbox"/> YU Yugoslavia                                |
| <input checked="" type="checkbox"/> KP Democratic People's Republic of Korea | <input checked="" type="checkbox"/> ZA South Africa                              |
|  | <input checked="" type="checkbox"/> ZW Zimbabwe                                  |
| <input checked="" type="checkbox"/> KR Republic of Korea                     |  |
| <input checked="" type="checkbox"/> KZ Kazakhstan                            |  |
| <input checked="" type="checkbox"/> LC Saint Lucia                           |  |
| <input checked="" type="checkbox"/> LK Sri Lanka                             |  |

Check-boxes reserved for designating States which have become party to the PCT after issuance of this sheet:

- ☒ and any other States which were available at filing

**Precautionary Designation Statement:** In addition to the designations made above, the applicant also makes under Rule 4.9(b) all other designations which would be permitted under the PCT except any designation(s) indicated in the Supplemental Box as being excluded from the scope of this statement. The applicant declares that those additional designations are subject to confirmation and that any designation which is not confirmed before the expiration of 15 months from the priority date is to be regarded as withdrawn by the applicant at the expiration of that time limit. (Confirmation (including fees) must reach the receiving Office within the 15-month time limit.)

**Box No. VI PRIORITY CLAIM**Further priority claims are indicated in the Supplemental Box ☐

The priority of the following earlier application(s) is hereby claimed:

Country (in which, or for which, the application was filed)	Filing Date (day/month/year)	Application No.	Office of filing (only for regional or international application)
item (1) <b>EP</b>	<b>10.06.1999</b>	<b>99 111 318.4</b>	<b>EP</b>
item (2)			
item (3)			

Mark the following check-box if the certified copy of the earlier application is to be issued by the Office which for the purposes of the present international application is the receiving Office (a fee may be required):

☒ The receiving Office is hereby requested to prepare and transmit to the International Bureau a certified copy of the earlier application(s) identified above as item(s): 1
**Box No. VII INTERNATIONAL SEARCHING AUTHORITY**

Choice of International Searching Authority (ISA) (If two or more International Searching Authorities are competent to carry out the international search, indicate the Authority chosen; the two-letter code may be used):

ISA /

Earlier search Fill in where a search (international, international-type or other) by the International Searching Authority has already been carried out or requested and the Authority is now requested to base the international search to the extent possible, on the results of that earlier search. Identify such search or request either by reference to the relevant application (or the translation thereof) or by reference to the search request

Country (or regional Office): **EP**Date (day/month/year): **24.02.2000**Number: **99 111 318.4****Box No. VIII CHECK LIST**

This international application contains the following number of sheets:

- |                |   |           |               |
|----------------|---|-----------|---------------|
| 1. request     | : | 4         | sheets        |
| 2. description | : | 14        | sheets        |
| 3. claims      | : | 4         | sheets        |
| 4. abstract    | : | 1         | sheets        |
| 5. drawings    | : | 3         | sheets        |
| <b>Total :</b> |   | <b>26</b> | <b>sheets</b> |

This international application is accompanied by the item(s) marked below:

- |  |  |
|--|--|
| 1. <input checked="" type="checkbox"/> separate signed power of attorney             | 5. <input checked="" type="checkbox"/> fee calculation sheet                         |
| 2. <input checked="" type="checkbox"/> copy of general JCD/FL/MCR power of attorney  | 6. <input type="checkbox"/> separate indications concerning deposited microorganisms |
| 3. <input type="checkbox"/> statement explaining lack of signature                   | 7. <input type="checkbox"/> nucleotide and/or amino acid sequence listing (diskette) |
| 4. <input type="checkbox"/> priority document(s) identified in Box No VI as item(s): | 8. <input checked="" type="checkbox"/> other (specify): Earlier Search               |

Figure No. \_\_\_\_\_ of the drawings (if any) should accompany the abstract when it is published.

**Box No. IX SIGNATURE OF APPLICANT OR AGENT**

Next to each signature, indicate the name of the person signing and the capacity in which the person signs (if such capacity is not obvious from reading the request)

**INA RESEARCH S.A.**

de BRUYN, Johan

BRUYLANTS, Philippe

1. Date of actual receipt of the purported international application:	For receiving Office use only	2. Drawings:
3. Corrected date of actual receipt due to later but timely received papers or drawings completing the purported international application:		<input type="checkbox"/> received
4. Date of timely receipt of the required corrections under PCT Article 11(2):		<input type="checkbox"/> not received:
5. International Searching Authority specified by the applicant: <b>ISA/</b>	6. <input type="checkbox"/> Transmittal of search copy delayed until search fee is paid	

Date of receipt of the record copy by the International Bureau:

For International Bureau use only

Form PCT/RO/101 (last sheet) (January 1994; reprint January 1996)

See Notes to the request form

**ADDITIONAL SHEET**

Representative's reference : F - 755 WO

Title of invention : Polypropylene with high melt strength and drawability

Additional employees A.133(3) 1 :  
or representatives

LEYDER Francis  
FINA Research S.A.  
Zone Industrielle C  
B - 7181 Seneffe (Feluy)  
BELGIUM

DETRAIT Jean-Claude  
c/o FINA Research S.A.  
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Telefax : + 32 64.51 46 57

Phone : + 32 64.51 43 62  
Telefax : + 32 64.51 46 57

GA 23919

GA 23918

GA 23919

At all instances, oral proceedings pursuant to Art. 116 (EPC) are requested unless one of the Applicant's requests can be granted.

The EPO is hereby authorized to charge any deficiency or credit any overpayment in the total fees indicated on the fee sheet to the deposit account 28020026

Fina Research S.A.

  
de Bruyn Johan

  
Bruylants Philippe

# VOLLMACHT<sup>1</sup> / AUTHORIZATION<sup>1</sup> / POUVOIR<sup>1</sup>

Bitte vor dem Ausfüllen des Formblatts Rückseite beachten  
Please read the notes overleaf before completing the form  
Veuillez lire les remarques au verso avant de remplir le formulaire

Zeichen des Vertreters (der Vertreter) (max. 15 Positionen)  
Representative's Reference (max. 15 spaces)  
Référence du (des) mandataire(s) (15 caractères ou espaces  
au maximum)

F- 755 WO

Nr. der Anmeldung (des Patents)/Application/Patent No./  
N° de la demande (du brevet)

PCT/EP

Ich (Wir) / I (We) / Je (Nous)<sup>2</sup>

DUPIRE, Marc  
Rue Maurice Flament (H.), 4  
B-7022 Mons  
Belgium

MICHEL, Jacques  
Chaussée de Marche, 2/C  
B-7181 Seneffe  
Belgium

bevollmächtigte(n) hiermit / do hereby authorise / autorise (autorisons) par le présente<sup>3</sup>

FINA RESEARCH S.A.,  
Zone Industrielle C  
B-7180 Seneffe (Feluyl)  
Belgium

représenté soit conjointement par MM. de Bruyn et Bruylants, soit par M. Leyder (PG 23919) ou Mr Detrait (PG 23918) ou  
Mme Roufosse (PG 23919)

☐ (Weitere Vertreter sind auf einem gesonderten Blatt angegeben. / Additional representatives indicated on supplementary sheet. /  
Les autres mandataires sont mentionnés sur une feuille supplémentaire.)

mich (uns) zu vertreten als / to represent me (us) as / à me (nous) représenter en tant que

☒ Anmelder oder Patentinhaber / applicant(s) or patent proprietor(s) / demandeur(s) ou titulaire(s) du brevet,

☐ Einsprechenden (Einsprechende) / opponent(s) / opposant(s),

für mich (uns) zu handeln in den durch das Europäische Patentübereinkommen geschaffenen Verfahren in der (den) folgenden  
europäischen

Patentanmeldung(en) oder dem (den) folgenden europäischen Patent(en)<sup>4</sup> und Zahlungen für mich (uns) in Empfang zu nehmen:  
to act for me (us) in all proceedings established by the European Patent Convention concerning the following European patent  
application(s) or

patent(s)<sup>4</sup> and to receive payments on my (our) behalf:

à agir en mon (notre) nom dans toute procédure instituée par la Convention sur le brevet européen et concernant la (les) demande(s) de  
brevet ou le (les) brevet(s) européen(s)<sup>4</sup> suivant(s) et à recevoir des paiements en mon (notre) nom:

POLYPROPYLENE WITH HIGH MELT STRENGTH AND DRAWABILITY.

ainsi qu'à désigner FINA RESEARCH S.A. comme représentant commun.

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☒ Diese Vollmacht gilt auch für eventuelle europäische Teilanmeldungen. / This authorisation also covers any European divisional  
applications. / Le présent pouvoir vaut également pour les demandes divisionnaires européennes qui pourraient être déposées.

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☐ Ich (Wir) widerrufe(n) hiermit frühere Vollmachten in Sachen der obenbezeichneten Anmeldung(en) oder des obenbezeichneten  
Patents

(der obenbezeichneten Patente)<sup>5</sup>. / I (We) hereby revoke previous authorisations in respect of the above application(s) or patent(s)<sup>5</sup>.  
Je révoque (Nous révoquons) par la présente tout pouvoir antérieur, donné pour la (les) demande(s) ou le (les) brevet(s)  
mentionné(s)  
ci-dessus<sup>5</sup>.

Ort / Place / Lieu FELUY

Datum / Date 11.06.1999

Unterschrift(en) / Signature(s) DUPIRE, Marc MICHEL, Jacques

Das Formblatt muß vom (von den) Vollmachtgeber(n) (bei juristischen Personen vom Unterschriftsberechtigten) eigenhändig unterzeichnet sein. Nach der Unterschrift bitte  
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name(s) of the signatory(ies) adding, in the case of legal persons, his (their) position within the company.

Le formulaire doit être signé de la propre main du (des) mandant(s) (dans le cas de personnes morales, de la personne ayant qualité pour signer). Veuillez ajouter à la  
machine, après la signature, le (les) nom(s) du (des) signataire(s) en mentionnant, dans le cas de personnes morales, ses (leurs) fonctions au sein de la société.

1 **ALLGEMEINE VOLLMACHT  
GENERAL AUTHORISATION  
POUVOIR GENERAL**

If requested to be returned by the EPO to the AUTHORISOR  
sur demande, à renvoyer par l'OEB au MANDANT

Nr. der allgemeinen Vollmacht / General Authorisation No  
N° du pouvoir général

23919 (add.)

2 Ich (Wir) / I (We) / Je (Nous)

FINA RESEARCH S.A.  
Zone Industrielle C  
B-7181 Seneffe (Feluy)  
BELGIQUE

3 bevollmächtigte(n) hiermit / do hereby authorise / autorise (autorisons) par la présente

ROUFOSSE Micheline (*Employée*)  
c/o FINA RESEARCH S.A., Dept. Brevets  
Zone Industrielle C  
B-7181 Seneffe (Feluy)  
Belgique

4 mich (uns) in den durch das Europäische Patentübereinkommen geschaffenen Verfahren in allen meinen (unseren) Patentangelegenheiten zu vertreten,  
alle Handlungen für mich (uns) vorzunehmen und Zahlungen für mich (uns) in Empfang zu nehmen.  
to represent me (us) in all proceedings established by the European Patent Convention and to act for me (us) in all patent transactions and to receive  
payments on my (our) behalf.

à me (nous) représenter pour ce qui concerne toutes mes (nos) affaires de brevet dans toute procédure instituée par la Convention sur le brevet européen  
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Ce pouvoir s'applique également à toute procédure instituée par le Traité de coopération en matière de brevets.

☐ Weitere Vertreter sind auf einem gesonderten Blatt angegeben. / Additional representatives indicated on supplementary sheet.  
Les autres mandataires sont mentionnés sur une feuille supplémentaire.

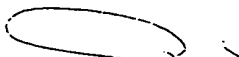
5 ☒ Untervollmacht kann erteilt werden. / Sub-authorisation may be given. / Le pouvoir pourra être délégué.

6 ☒ Bitte die gelbe Kopie, ergänzt um die Nr. der allgemeinen Vollmacht, an den Vollmachtgeber zurücksenden.  
Please return the yellow copy, supplemented by the General Authorisation No., to the authorisor.  
Prière de renvoyer la copie jaune au mandant, munie du n° du pouvoir général.

Ort / Place / Lieu Seneffe (Feluy)

Datum / Date February 13, 1997

Unterschrift(en) / Signature(s)



F. LEYDER



J.C. DELRAIT  
Directeur Adjoint

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(die) Namen des (den) Unterzeichneten mit Schreibmaschine wiederholen (bei juristischen Personen die Stellung des Unterschriftsberechtigten innerhalb der Gesellschaft  
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The form must bear the personal signature(s) of the authorisor(s) (in the case of legal persons, that of the officer empowered to sign). After the signature, please type the name(s)  
of the signatory(ies) adding, in the case of legal persons, his (their) position within the company.

Le formulaire doit être signé de la propre main du (des) mandant(s) (dans le cas de personnes morales, de la personne ayant qualité pour signer). Veuillez ajouter à la machine,  
après la signature, le (les) nom(s) du (des) signataire(s) en mentionnant, dans le cas de personnes morales, ses (leurs) fonctions au sein de la société.

**ALLGEMEINE VOLLMACHT  
GENERAL AUTHORIZATION  
POUVOIR GENERAL**

requested to be returned by the EPO to the AUTH-  
demande, à renvoyer par KOEB au MANDANT

23918

FINA RESEARCH S.A.  
XXXXX XXXXX XXXXX  
Zone Industrielle C  
B-6520 Seneffe  
Belgium

bevollmächtigte(n) hiermit / do hereby authorize / autorise (autorisons) par la présente

DETRAIT Jean-Claude  
c/o FINA RESEARCH S.A., Dept. Brevets  
Zone Industrielle C  
B-6520 Seneffe

mich (uns) in den durch das Europäische Patentübereinkommen geschaffenen Verfahren in allen meinen (unseren) Patentangelegenheiten zu vertreten,  
alle Handlungen für mich (uns) vorzunehmen und Zahlungen für mich (uns) in Empfang zu nehmen.  
to represent me (us) in all proceedings established by the European Patent Convention and to act for me (us) in all patent transactions and to receive  
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☒ Die Vollmacht gilt auch für Verfahren nach dem Vertrag über die internationale Zusammenarbeit auf dem Gebiet des Patentwesens.  
This authorisation shall also apply to the same extent to any proceedings established by the Patent Cooperation Treaty.  
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Les autres mandataires sont mentionnés sur une feuille supplémentaire.

☒ Untervollmacht kann erteilt werden. / Sub-authorisation may be given. / Substitution pourra être faite.

☒ Bitte die gelbe Kopie, ergänzt um die Nr. der allgemeinen Vollmacht, an den Vollmachtgeber zurücksenden.  
Please return the yellow copy, supplemented by the General Authorisation No., to the authorisor.  
Prière de renvoyer la copie jaune au mandant, munie du n° du pouvoir général.

Ort / Place / Lieu Seneffe

Unterschrift(en) / Signature(s)

Datum / Date 4 décembre 1989

R. PIRE  
Secrétaire Général

W. BRACKE  
Administrateur Délégué

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(die) Namen des (den) Unterzeichneten mit Schreibmaschine wiederholen (bei juristischen Personen die Stellung des Unterschriftsberechtigten innerhalb der Gesellschaft  
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of the signatory(ies) adding, in the case of legal persons, his (their) position within the company.

Le formulaire doit être signé de la propre main du (des) mandant(s) (dans le cas de personnes morales, de la personne ayant qualité pour signer). Veuillez ajouter à la machine,  
après la signature, le (les) nom(s) du (des) signataire(s) en mentionnant, dans le cas de personnes morales, ses (leurs) fonctions au sein de la société.



**ALLGEMEINE VOLLMACHT  
GENERAL AUTHORIZATION  
POUVOIR GENERAL**

Sur demande, à renvoyer par l'OEB au MANDANT  
der allgemeinen Vollmacht / General Authorisation  
du pouvoir général

23919

2 Ich (Wir) / (We) / Je (Nous)

FINA RESEARCH S.A.  
Zone Industrielle C  
B-6520 Seneffe  
Belgium

**LABOFINA / FELUY**

**ENTRÉE 26 DEC. 1989**

3 bevollmächtigte(n) hiermit / do hereby authorize / autorise (autorisons) par la présente

LEYDER Francis  
C/o FINA RESEARCH S.A., Dpt. Brevets  
Zone Industrielle C  
B-6520 Seneffe

4 mich (uns) in den durch das Europäische Patentübereinkommen geschaffenen Verfahren in allen meinen (unseren) Patentangelegenheiten zu vertreten, alle Handlungen für mich (uns) vorzunehmen und Zahlungen für mich (uns) in Empfang zu nehmen.  
to represent me (us) in all proceedings established by the European Patent Convention and to act for me (us) in all patent transactions and to receive payments on my (our) behalf.  
à me (nous) représenter pour ce qui concerne toutes mes (nos) affaires de brevet dans toute procédure instituée par la Convention sur le brevet européen et, à ce titre, à agir en mon (notre) nom et à recevoir des paiements pour mon (notre) compte.

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5 ☒ Untervollmacht kann erteilt werden. / Sub-authorisation may be given. / Substitution pourra être faite.

6 ☒ Bitte die gelbe Kopie, ergänzt um die Nr. der allgemeinen Vollmacht, an den Vollmachtgeber zurücksenden.  
Please return the yellow copy, supplemented by the General Authorisation No., to the authorisor.  
Prière de renvoyer la copie jaune au mandant, munie du n° du pouvoir général.

Ort / Place / Lieu **Seneffe**

Datum / Date **4 décembre 1989**

Unterschrift(en) / Signature(s)

**R. PIRE**  
**W. BRACKE**  
**Secrétaire Général Administrateur Délégué**

7 Das Formblatt muß vom (von den) Vollmachtgeber(n) (bei juristischen Personen vom Unterschriftsberechtigten) eigenhändig unterzeichnet sein. Nach der Unterschrift bitte den (die) Namen des (der) Unterzeichneten mit Schreibmaschine wiederholen (bei juristischen Personen die Stellung des Unterschriftsberechtigten innerhalb der Gesellschaft angeben).

The form must bear the personal signature(s) of the authorisor(s) (in the case of legal persons, that of the officer empowered to sign). After the signature, please type the name(s) of the signatory(ies) adding, in the case of legal persons, his (their) position within the company.

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## PATENT COOPERATION TREATY

## PCT

REC'D 24 OCT 2001

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)


Applicant's or agent's file reference F-755 WO	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/EP00/05397	International filing date (day/month/year) 08/06/2000	Priority date (day/month/year) 10/06/1999
International Patent Classification (IPC) or national classification and IPC C08L23/10		
Applicant <b>ATOFINA RESEARCH</b>		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 6 sheets, including this cover sheet.
- ☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 3 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☒ Certain observations on the international application

Date of submission of the demand  15/12/2000	Date of completion of this report  19.10.2001
Name and mailing address of the international preliminary examining authority:   European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016	Authorized officer  Schmidt, H  Telephone No. +31 70 340 2461



# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/EP00/05397

## I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

**Description, pages:**

1-14 as originally filed

**Claims, No.:**

1-20 as received on 28/06/2001 with letter of 28/06/2001

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☒ the claims, Nos.: 21-33
- ☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/EP00/05397

*(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)*

6. Additional observations, if necessary:

## V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

### 1. Statement

Novelty (N)	Yes:	Claims 4,12,16
	No:	Claims 1-3,5-11,13-15,17-20
Inventive step (IS)	Yes:	Claims
	No:	Claims 1-20
Industrial applicability (IA)	Yes:	Claims 1-20
	No:	Claims

2. Citations and explanations  
**see separate sheet**

## VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:  
**see separate sheet**

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/EP00/05397

**Box I**

1. Basis of the report:

The present report is based on the amended claims filed with letter of 28.6.2001. The amendments filed with the International Bureau are in conformity with Article 34(2)b PCT and allowable

**Box V**

2. Claims 1-3, 5-11, 13-15 and 17-20 are not novel acc. Art. 33(2) PCT

Subject matter of present claim 1 is the use of multimodal polypropylene of 50-70% of a high molecular weight fraction and 50-30% of a low molecular weight fraction and a dispersion index of 8 or higher,  $M_z/M_n=50-150$  for improving the balance between melt strength and drawability when melt processed. Subject matter of claim 9 is the corresponding composition and of claim 13 a corresponding method of melt processing

D1 (EP-A-942013) is a family member and english translation of WO-A-99/7752, which was published on 18.2.1999 and therefore constitutes state of the art acc. Art. 33(2) and (3) PCT.

D1 describes high melt tension polypropylene blends for melt processing. The parameters shown are within the ranges of present application. Particularly, example X-9 in table 9 of D1 describes a polypropylene composition of  $M_w/M_n=19.0$  and  $M_z/M_w=4.8$ . The ratio of  $M_z/M_n$  is then  $19.0 \times 4.8 = 91.2$ . The content of the higher molecular weight part is 42%, but page 9, lines 24-26 disclose a content of the higher molecular weight portion of 20-50%. The compositions are used for stretched or inflated films and have the advantage of high melt tension without breaking under stretching when producing films under high speed (page 18, lines 11-43, see also the values of melt tension and critical shearing rate in the examples). The series of examples 3 on page 47 ff. show, that no draw-down occurs upon vacuum forming. Somebody skilled in the art will regard this as an improvement of melt strength and drawability as desired in the use and method of present application. Claims 1, 9 and 13 hence are not new in the sense of Art.33(2) PCT

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2.2 The subject matter of claims 2, 8, 10, 14 and 20 is already disclosed in D1.

The subject matter of claims 5-7 and 17-19 is also disclosed in D1, example series 4., where the blends are extruded with peroxides and cross-linking aids as claimed in the above claims.

The peroxide claimed in claims 6 and 18 is mentioned on page 19, line 25

2.3 The subject matter of claims 3, 11 and 15 (55-65% content of high molecular weight fraction) and 4, 12 and 16 (ratio of melt indices) are not disclosed in D1. However, since the weight percentage ranges of the higher and lower melt fractions are dependant on the definition of these fractions, which is unclear, these claims apparently lack novelty (see VIII).

3. Claims 4, 12 and 16 are still not inventive acc. Art. 33(3) PCT

3.1 Closest prior art is D1. Difference of D1 to the present claims is a content of 55-65% and 45-35% of the first and second fraction (claims 3, 11 and 15) and a ratio of at least 5 of the melt indices of these fractions (claims 4, 12 and 16). The applicants' comparative examples do not disclose compositions of bimodal polypropylene blends having weight percentage ranges or melt index ratios outside these claimed ranges. The choice of such ranges hence is one out of a number of equally likely alternatives. As long as advantageous technical effects of such a choice of ranges are not proven, the selection made is regarded as arbitrary and hence non-inventive. The applicant is asked to provide comparative examples of bimodal polypropylene blends with a melt index ratio of lower than 5 or high molecular weight part outside the range of 55-65% showing that the blends claimed in present application have an enhanced compromise of melt strength and drawability.

**Box VIII**

4. Claims 1, 3, 9, 11, 13 and 15 are not clear according Art. 6 PCT

4.1 The term "enhancing a compromise" in claim 1 is unclear and should be replaced by another formulation. It is particularlyly ambiguous how a compromise, i.e. balance

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between melt strength and drawability can be enhanced, i.e. made bigger. Even if the explanation given in the description of the application bridging pages 1 and 2 would be clear, this is not sufficient for the clarity of the claims, which have to be clear in themselves

4.2 The terms "high molecular weight" and low molecular weight" fraction in claims 1, 9 and 13 are ambiguous and do not sufficiently define the molecular weight ranges of the high molecular weight fraction and the low molecular weight fraction. Since polymers have a range of molecular weights, the ranges of the two fraction can overlap and it is not clear, whether the overlapping parts belong to the first or second fraction, thus rendering the weight percentages of the fractions defined in claims 1,3, 9, 11, 13 and 15 unclear as well.